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(54) Title: **FLAVANOID 3',5'-HYDROXYLASE GENE SEQUENCES AND USES THEREFOR**

(57) Abstract: The present invention relates generally to a genetic sequence encoding a polypeptide having flavonoid 3', 5'-hydroxylase (F3'5'H) activity and to the use of the genetic sequence and/or its corresponding polypeptide thereof *inter alia* to manipulate color in flowers or parts thereof or in other plant tissue. More particularly, the F3'5'H has the ability to modulate dihydrokaempferol (DHK) metabolism as well as the metabolism of other substrates such as dihydroquercetin (DHQ), naringenin and eriodictyol. Even more particularly, the present invention provides a genetic sequence encoding a polypeptide having F3'5'H activity when expressed in rose or gerbera or botanically related plants. The instant invention further relates to antisense and sense molecules or RNAi-inducing molecules corresponding to all or part of the subject genetic sequence or a transcript thereof. The present invention further relates to promoters which operate efficiently in plants such as rose, gerbera or botanically related plants.